

1. A communication system configured to provide bandwidth sharing, the communication system comprising:
- a service provider;
  - a first user communication device configured to communicate with the service provider over a first link; and
- 5 a second user communication device configured to communicate with the service provider over a second link, determine a need for additional bandwidth and transmit a request for the additional bandwidth, receive an instruction message responsive to the request that grants the second user communication
- 10 device access to available bandwidth on the first link, and communicate with the service provider over a third link and the first link at the available bandwidth wherein the third link connects the second user communication device and the first user communication device.
- 15 2. The communication system of claim 1 wherein the second user communication device is further configured to:
- establish the third link with the first user communication device responsive to the reply message.
- 20 3. The communication system of claim 1 wherein the first link and the second link comprise Digital Subscriber Line (DSL) service links.
4. The communication system of claim 1 wherein the third link comprises a wire line link.
- 25 5. The communication system of claim 1 wherein the third link comprises a wireless link.
- 30 6. The communication system of claim 1 wherein the first user communication device is further configured to:
- determine the available bandwidth of the first link and indicate the available bandwidth to the second user communication device.

7. The communication system of claim 1 wherein the first user communication device is further configured to:

determine the available bandwidth of the first link and indicate the

5 available bandwidth to the service provider.

8. The communication system of claim 1 wherein the first user communication device is further configured to:

generate a link sharing contract for the available bandwidth of the first link

10 that specifies a type of link access to the first link.

9. The communication system of claim 8 wherein the link access comprises an interruptible access to the first link.

15 10. The communication system of claim 8 wherein the link access comprises a non-interruptible access to the first link.

11. The communication system of claim 8 wherein the service provider is configured to bill the second user communication device based on the link sharing contract.

20 12. The communication system of claim 8 wherein the service provider is configured to bill the first user communication device based on the link sharing contract.

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13. A method of providing bandwidth sharing in a communication system, the method comprising:

in a first user communication device, communicating with a service provider over a first link; and

5 in a second user communication device:

communicating with the service provider over a second link,

determining a need for additional bandwidth and transmitting a request for the additional bandwidth,

receiving an instruction message responsive to the request that

10 grants the second communication device access to available bandwidth of the first link, and

communicating with the service provider over a third link and the first link at the available bandwidth wherein the third link connects the second user communication device and the first user communication device.

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14. The method of claim 13 further comprising:

in the second user communication device, establishing the third link with the first user communication device responsive to the instruction message.

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15. The method of claim 13 wherein the first link and the second link comprise Digital Subscriber Line (DSL) service links.

16. The method of claim 13 wherein the third link comprises a wire line link.

25 17. The method of claim 13 wherein the third link comprises a wireless link.

18. The method of claim 13 further comprising:

in the first user communication device, determining the available bandwidth of the first link and indicating the available bandwidth to the second user communication device.

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19. The method of claim 13 further comprising:

in the first user communication device, determining the available bandwidth of the first link and indicating the available bandwidth to the service provider.

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20. The method of claim 13 further comprising:

in the first user communication device, generating a link sharing contract for the available bandwidth of the first link that specifies a type of link access to the first link.

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21. The method of claim 20 wherein the link access comprises an interruptible access to the first link.

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22. The method of claim 20 wherein the link access comprises a non-interruptible access to the first link.

23. The method of claim 20 further comprising:

in the service provider, billing the second user communication device based on the link sharing contract.

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24. The method of claim 20 further comprising:

in the service provider, billing the first user communication device based on the link sharing contract.

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25. A software product for use in a communication system that provides bandwidth sharing, the communication system comprised of a first user communication device, a second user communication device, and a service provider, the first user communication device configured to communicate with the service provider over a first link, the second user communication device configured to communicate with the service provider over a second link, the software product comprising:
- 5           bandwidth sharing software configured when executed by a processing system in the second user communication system to:
- 10           determine a need for additional bandwidth and transmit a request for the additional bandwidth,
- receive an instruction message responsive to the request that grants the second user communication device access to available bandwidth on the first link,
- 15           and communicate with the service provider over a third link and the first link at the available bandwidth wherein the third link connects the second user communication device and the first user communication device; and
- storage media configured to store the bandwidth sharing software.
- 20 26. The software product of claim 25 wherein the bandwidth sharing software is further configured when executed by the processing system in the second user communication system to:
- establish the third link with the first user communication device responsive to the instruction message.
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27. The software product of claim 25 wherein the first link and the second link comprise Digital Subscriber Line (DSL) service links.
28. The software product of claim 25 wherein the third link comprises a wire line link.
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29. The software product of claim 25 wherein the third link comprises a wireless link.

30. A communication system configured to provide bandwidth sharing, the

5 communication system comprising:

a first user communication device configured to communicate with a service provider over a first link; and

a second user communication device configured to communicate with a service provider over a second link; and

10 a service provider configured to determine a need to provide additional bandwidth to the second user communication device, determine available bandwidth on the first link, generate and transmit an instruction message responsive to the determination of the available bandwidth on the first link that grants the second user communication device access to the available bandwidth on the first link,

15 the second user communication device further configured to receive the instruction message and communicate with the service provider over a third link and the first link at the available bandwidth responsive to the instruction message wherein the third link connects the second user communication device and the first user communication device.

20 31. The communication system of claim 30 wherein the second user communication device is further configured to:

establish the third link with the first user communication device responsive

25 to the reply message.

32. The communication system of claim 30 wherein the first link and the second link comprise Digital Subscriber Line (DSL) service links.

30 33. The communication system of claim 30 wherein the third link comprises a wire line link.

34. The communication system of claim 30 wherein the third link comprises a wireless link.
35. The communication system of claim 30 wherein the first user communication device is further configured to:
- determine the available bandwidth of the first link and indicate the available bandwidth to the second user communication device.
36. The communication system of claim 30 wherein the first user communication device is further configured to:
- determine the available bandwidth of the first link and indicate the available bandwidth to the service provider.
37. The communication system of claim 30 wherein the first user communication device is further configured to:
- generate a link sharing contract for the available bandwidth of the first link that specifies a type of link access to the first link.
38. The communication system of claim 37 wherein the link access comprises an interruptible access to the first link.
39. The communication system of claim 37 wherein the link access comprises a non-interruptible access to the first link.
40. The communication system of claim 37 wherein the service provider is configured to:
- bill the second user communication device based on the link sharing contract.
41. The communication system of claim 37 wherein the service provider is configured to:
- bill the first user communication device based on the link sharing contract.

42. A method of providing bandwidth sharing in a communication system, the method comprising:
- in a first user communication device, communicating with a service provider over a first link; and
- 5       in a second user communication device, communicating with the service provider over a second link; and
- in the service provider:
    - determining a need to provide additional bandwidth to the second user communication device,
- 10      determine available bandwidth on the first link,
  - generating and transmitting an instruction message responsive to the determination of the available bandwidth on the first link that grants the second user communication device access to the available bandwidth on the first link; and
- 15      in the second user communication device, receiving the instruction message and communicating with the service provider over a third link and the first link at the available bandwidth responsive to the instruction message wherein the third link connects the second user communication device and the first user communication device.
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43. The method of claim 42 further comprising:
- in the second user communication device, establishing the third link with the first user communication device responsive to the instruction message.
- 25 44. The method of claim 42 wherein the first link and the second link comprise Digital Subscriber Line (DSL) service links.
45. The method of claim 42 wherein the third link comprises a wire line link.
- 30 46. The method of claim 42 wherein the third link comprises a wireless link.

47. The method of claim 42 further comprising:

in the first user communication device, determining the available bandwidth of the first link and indicating the available bandwidth to the second user communication device.

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48. The method of claim 42 further comprising:

in the first user communication device, determining the available bandwidth of the first link and indicating the available bandwidth to the service provider.

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49. The method of claim 42 further comprising:

in the first user communication device, generating a link sharing contract for the available bandwidth of the first link that specifies a type of link access to the first link.

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50. The method of claim 49 wherein the link access comprises an interruptible access to the first link.

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51. The method of claim 49 wherein the link access comprises a non-interruptible access to the first link.

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52. The method of claim 49 further comprising:

in the service provider, billing the second user communication device based on the link sharing contract.

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53. The method of claim 49 further comprising:

in the service provider, billing the first user communication device based on the link sharing contract.

54. A software product for use in a communication system that provides bandwidth sharing, the communication system comprised of a first user communication device, a second user communication device, and a service provider, the first user communication device configured to communicate with the service provider over a first link, the second user communication device configured to communicate with the service provider over a second link, the software product comprising:

5 bandwidth sharing software configured when executed by a processing system in the service provider to:

10 determine a need to provide additional bandwidth to the second user communication device,

determine available bandwidth on the first link,

15 generate and transmit an instruction message responsive to the determination of the available bandwidth on the first link that grants the second user communication device access to the available bandwidth on the first link; and

storage media configured to store bandwidth sharing software.

55. The software product of claim 54 wherein the first link and the second link

20 comprise Digital Subscriber Line (DSL) service links.